

CERTIFIED MAIL 7018 3090 0001 9999 0245

RECEIVED

VOV 0 8 2019

AIR ENFORCEMENT BRANCH

September 30, 2019

Air and Radiation Division
U. S. Environmental Protection Agency, Region V
77 West Jackson Boulevard,
Chicago, IL 60604

Re: Submittal of U. S. Steel – Minntac and Keetac Compliance Reports per the Requirements of 40 CFR Part 52.1235(e)(5) through (7) – Taconite Regional Haze FIP

U. S. Steel - Keetac (Keetac)

Keetac utilizes Ametek Model 920 analyzers to measure NOx and SO₂ (Serial Number AE-920-10086-1).

Keetac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 3rd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO2 is $225 \, lbs/hr - 30 \, day$ rolling average. There were no deviations associated with the emission limit.

The emission limitation for NOx became effective on September 8, 2019 and is 1.5 lbs/MMBtu based on a 30-day rolling average. However, for any 30 or more consecutive days when only natural gas is used, a limit of 1.2 lbs/MMBtu applies. Refer to attachment 1.

The last CEMS CGA was conducted on September 5, 2019 and is included in this submittal. The last CEMS RATA was conducted on March 19, 2019 and was previously submitted.

U. S. Steel - Minntac (Minntac)

Minntac utilizes Ametek Model 920 analyzers to measure NOx and SO₂. The table below outlines the serial numbers for each of the units:

Line 3	AE-920-10086-1	
Line 4	AE-920-10086-2	
Line 5	AE-920-10086-3	
Line 6	ZA-920-10336-1	

Minntac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 3rd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO_2 is a 30-day rolling average aggregate limit for indurating lines 3-7 of 498 lbs/hr when all lines are producing flux pellets, 630 lbs/hr when producing acid pellets or using the equation in 40 CFR 52.1235(b)(2)(iii) when the 30 day period includes both acid and flux pellet production. There were no deviations associated with the emission limit.

The emission limitation for NOx on Lines 4, 6 and Line 7 is 1.5 lbs/MMBtu based on a 30-day rolling average. However, for any 30 or more consecutive days when only natural gas is used, a limit of 1.2 lbs/MMBtu applies. There were no deviations associated with the emission limit for Lines 4, 6 and Line 7.

The latest CEMS RATA was conducted on Lines 3-7 on May 15-16 and May 20-22, 2019. This report was submitted on July 10, 2019. The last CGAs were performed on August 21-22, 2019 and are included in this report.

If you should require any additional information, please contact me at scampbell@uss.com or 218-778-8684.

Sincerely,

Stephani Campbell

Environmental Control

sphane Campbell



U. S. Steel Corporation Minnesota Ore Operations P.O. Box 217 Keewatin, MN 55753

CERTIFIED MAIL 7018 3090 0001 9999 0238

October 29, 2019

Air Quality Compliance Tracking Coordinator Minnesota Pollution Control Agency 520 Lafayette Road North St. Paul, MN 55155-4194

Re:

U. S. Steel – Keetac Administrative Order by Consent Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Keetac's (Keetac) Quarterly Continuous Emission Monitoring System Deviation report for the 3rd quarter of 2019. The Continuous Emission Monitoring System (CEMS) was certified on Keetac's Waste Gas Stack on November 6th, 2008. The CEMS was installed as a part of Keetac's Administrative Order by Consent with the State of Minnesota effective September 27th, 2007.

Deviations associated with Emission Limits

There was one deviation associated with emission limits.

Deviations associated with Monitor Downtime

There were fifteen instances of monitor downtime that affected either NO_x or SO₂. The individual downtime duration and cause is listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

Keetac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500 °F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed

such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x and SO_2 are emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,

Lawrence Sutherland General Manager

U. S. Steel - Minnesota Ore Operations

Enclosure

cc: Steve Palzkill - MPCA

File



Excess Emissions Reporting Form - DRF-1

Continuous Monitoring Systems Reporting Form

Use this form to record and report excess emissions (EE) that are identified by Continuous Monitoring Systems. This includes Continuous Emission Monitoring Systems DRF-1 to ensure proper use and understanding of definitions. <u>DO NOT</u> print and return the instructions. Please note: This form has been updated. Please print, complete and remit only the forms. Please see the instructions in the Word version of

(CEMS) and Continuous Opacity Monitoring Systems (COMS). DRF-1 is the form you must use to report excess emissions from a stack as recorded by your facility's

Address hard copy Compliance Tracking Coordinator, Fourth Floor Minnesota Pollution Control Agency St. Paul, MN 55155-4194 520 Lafayette Road North

Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS).

General Facility Information

Report covers Quarter: Third	AQ file no.: 62B	Company name: U. S. Steel - Keetac
Year:	AQ permit no.:	
2019	13700063-005	

		Line 2 SO2 SV 051	NOx SO2	ber Pollutant NOx SO2	ber Pollutant Number NOx SV 051 SO2 SV 051	y 2b) 2c) br ID Monitor ID EU/SV ID ber Pollutant Number NOx SV 051 SO2 SV 051	2b) 2c) or ID Monitor ID EU/SV ID ber Pollutant Number NOx SV 051 SO2 SV 051	MS/COMS Data Summar 2b) 2c) pr ID Monitor ID EU/SV ID ber Pollutant Number NOx SV 051 SO2 SV 051	2a) Zb) Zc) Monitor ID Monitor ID EU/SV ID Number Pollutant Number Line 2 NOx SV 051 Line 2 SO2 SV 051	2) CEMS/COMS Data Summary T 2a) 2b) 2c) Monitor ID Monitor ID EU/SV ID Tol Number Pollutant Number Line 2 NOx SV 051 Line 2 SO2 SV 051
	2205	2205	(TOT) (hr)	lotal Operating Time	1	2d)	2d)	2d)	2d)	2d)
	14	6	Downtime (hr)	OTHEO	1	3i)	Duration of Monitor Downtime 3i) 2e)	Duration of Monitor D	Duration of Monitor D	Duration of Monitor D
	0.6% N/A	0.3% N/A	% Of 101	Downtime		2e)	owntime 2e)	owntime 2e)	owntime 2e)	owntime 2e)
			% Of TOT Duration of Exempt EE	Cumulative)	4)		-5		
	N/A	N/A		Exempt EE % or IOI	110	2f)	Duration of Excess Emissions (EE)	Duration of Excess Emi	Duration of Excess Emi	Duration of Excess Emi
		0	Duration of All EE	Cumulative		4m)				
	0.05%	0.00%	9	Total EE		2g)	2g)	2g)	29)	2g)

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maintenance	60 Automatic Calibration	60 A	09/03/2019 06:59:00	09/03/2019 06:00:00	SV 051	NOx	Line 2
maintenance	function	60 8	08/30/2019 10:59:00	08/30/2019 10:00:00	SV 051	NOx	Line 2
maintenance		60 A	08/30/2019 06:59:00	08/30/2019 06:00:00	SV 051	NOx	Line 2
maintenance		60 A	08/13/2019 06:59:00	08/13/2019 06:00:00	SV 051	NOx	Line 2
maintenance		60 A	08/07/2019 06:59:00	08/07/2019 06:00:00	SV 051	NOx	Line 2
Performed necessary maintenance	60 Automatic Calibration	60 A	07/29/2019 06:59:00	07/29/2019 06:00:00	SV 051	NOx	Line 2
maintenance		60 A	09/03/2019 06:59:00	09/03/2019 06:00:00	SV 051	S02	Line 2
maintenance	60 Sample Interface Malfunction	60 S	08/30/2019 10:59:00	08/30/2019 10:00:00	SV 051	SO2	Line 2
Performed necessary maintenance		60 A	08/30/2019 06:59:00	08/30/2019 06:00:00	SV 051	S02	Line 2
Performed necessary maintenance	60 Automatic Calibration	60 A	08/13/2019 06:59:00	08/13/2019 06:00:00	SV 051	SO2	Line 2
Performed necessary maintenance		60 A	08/07/2019 06:59:00	08/07/2019 06:00:00	SV 051	S02	Line 2
Performed necessary maintenance	60 Automatic Calibration	60 A	07/29/2019 06:59:00	07/29/2019 06:00:00	SV 051	S02	Line 2
Performed necessary maintenance	360 Primary Analyzer Malfunction	360 P	07/08/2019 12:59:00	07/08/2019 07:00:00	SV 051	SO2	Line 2
Performed necessary maintenance		60 A	07/08/2019 06:59:00	07/08/2019 06:00:00	SV 051	SO2	Line 2
Performed necessary maintenance	60 Primary Analyzer Malfunction	60 Pi	07/08/2019 05:59:00	07/08/2019 05:00:00	SV 051	S02	Line 2
3h) Corrective ActionTaken (clarifying comments)	3g) Reason for Monitor Downtime (clarifying comments)	3f) Duration of Downtime (min)	3e) End Date and Time of Downtime	3d) Beginning Date and Time of Downtime	3c) Emission Unit Being Monitored	3b) Monitor ID Pollutant or Parameter	3a) Monitor ID Number
for each monitor, as needed.	3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.	h period of mor	g information regarding eac	time: Provide the followin	itor Down	ion of Moni	3) Durat

3i) Total duration of downtime: 20

hours

Duration	4m) Cumulative Fotal Duration		C	Emissions:	mpt Excess	4I) Cumulative Duration of Exempt Excess Emissions:	4l) Cumulativ			
	A D Tafal									
pumps were replaced.	lime pump to respond and increase the pH.									
Long term both lime	and time for the 2nd				Ξ					
Short term, the second lime pump was started.	EE occurred due to		0	298 lb/hr	290 lb -	7/17/2019 15:59	7/17/2019 15:00 7/17/2019 15:59	SO2	CM005	SV051
N/A	N/A	0	0	N/A	N/A	N/A	N/A	NOx	CM001	SV051
			part of 4i)	lb/hr, etc)						
			entries as	(example: 5 entries						
			these	Units						
•		of All EE	(include	EE with	Period				4	Number
(clarifying comments)	EE Duration (clarifying comments) (clarifying comments)	Duration	Exempt EE	Reading of Exempt	Averaging	Time of EE	and Time of EE		Nimber	Unit ID
Corrective Action Taken	Cause of EE	Total	Duration of		Limit and	End Date and	Beginning Date	Monitor ID Pollutant or	Monitor ID	Emission
4K)		<u>4</u>	4h)	4g)	4f)	4e)	4d)	4c)	4b)	, 4a)
-	;	mission	ual excess e	each individ	on regarding	4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission	sions: Provide the	cess Emiss	ion of Exc	4) Durat

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were

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Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	number	5a)
SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	Unit Required to be Monitored	5b)
NOx and	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	and Limit Required to be Monitored	5c)
8/11/2019 23:15	8/11/2019 21:00	8/11/2019 20:04	8/11/2019 13:00	8/11/2019 11:52	8/10/2019 20:03	8/7/2019 13:00	8/7/2019 7:23	8/7/2019 7:07	8/7/2019 7:01	7/29/2019 7:06	7/28/2019 13:40	7/25/2019 19:17	7/19/2019 21:12	7/19/2019 9:23	7/18/2019 9:45	7/16/2019 17:48	7/16/2019 17:24	7/11/2019 8:27	Bypass Period	5d) Reginning Date and Time of
8/11/2019 23:25	8/11/2019 23:14	8/11/2019 21:00	8/11/2019 16:51	8/11/2019 13:00	8/10/2019 20:47	8/7/2019 14:27	8/7/2019 13:00	8/7/2019 7:23	8/7/2019 7:06	7/29/2019 8:04	7/28/2019 14:03	7/25/2019 20:35	7/20/2019 1:01	7/19/2019 10:43	7/18/2019 12:52	7/16/2019 17:51	7/16/2019 17:47	7/11/2019 8:31	period	(5a) 5b) 5c) 5d) 5d) 5e) 5f) 5g) 5h) 5i) 5a) 5b) 5g) 5h) 5j) 5h) 5j) 5h) 5j) 5h) 5j) 5h) 5j) 5a) 5b) 5d) 5d) 5d) 5d) 5d) 5d) 5d) 5d) 5d) 5d
10	134	56	231	68	44	87	337	16	ڻ ن	57	24	78	229	80	187	ω	23	4	monitor bypass (min)	5f) Duration of
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	operating during bypass period?	5g) Was P.C.E.
10	134	56	231	68	44	87	337	16	σı	57	24	78	229	80	187	ω	23	4	5	5h) Duration of
Bypass necessary to protect plant equipment	Bypass necessary to protect plant equipment	brotect plant equipment	protect plant equipment	bypass necessary to protect plant equipment	protect plant equipment	bypass necessary to protect plant equipment	protect plant equipment	Bypass necessary to protect plant equipment	bypass (clarifying comments)	5i) Reason for monitor										
t N/A	t N/A	t N/A	t N/A	t N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	action taken (clarifying comments)	5j) Corrective						

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Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Monitor ID number	5 <u>a</u>)
SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	Emission Unit Required to be Monitored	5b)
NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	Pollutant and Limit Required to be Monitored	5c)
8/31/2019 15:02	8/30/2019 5:00	8/30/2019 4:22	8/27/2019 16:41	8/27/2019 16:37	8/26/2019 14:38	8/25/2019 13:22	8/24/2019 13:00	8/24/2019 8:41	8/24/2019 5:00	8/23/2019 22:22	8/23/2019 21:00	8/23/2019 13:43	8/19/2019 7:50	8/13/2019 12:17	8/13/2019 5:00	8/12/2019 22:59	8/12/2019 19:40	8/12/2019 0:25	Beginning Date and Time of Bypass Period	5d)
8/31/2019 15:31	8/30/2019 10:33	8/30/2019 5:00	8/27/2019 16:42	8/27/2019 16:40	8/26/2019 14:57	8/25/2019 13:35	8/24/2019 18:02	8/24/2019 13:00	8/24/2019 6:52	8/24/2019 5:00	8/23/2019 21:21	8/23/2019 21:00	8/19/2019 7:58	8/13/2019 12:45	8/13/2019 9:29	8/13/2019 5:00	8/12/2019 19:59	8/12/2019 4:00	End date and time of bypass period	5e)
29	333	38	2	4	18	14	303	259	112	398	21	437	œ	28	269	361	19	215	Duration of monitor bypass (min)	51)
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Way op durin pe	5g)
29	333	38	2	4	18	14	303	259	112	398	21	437	œ	28	269	361	19	215	Duration of allowable monitor bypass (min)	5h)
Bypass necessary to protect plant equipment	Bypass necessary to protect plant equipment	Bypass necessary to protect plant equipment	protect plant equipment	Bypass necessary to protect plant equipment	brotect plant equipment	brotect plant equipment	Bypass necessary to protect plant equipment	Reason for monitor bypass (clarifying comments)	5i)											
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NΆ	N/A	N/A	Corrective action taken (clarifying comments)	5j)

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Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	Line 2	number	5a)
SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	SV 051	Unit Required to be Monitored	5b)
NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	NOx and SO2	and Limit Required to be Monitored	5c)
9/26/2019 11:32	9/22/2019 21:00	9/22/2019 20:03	9/21/2019 16:35	9/19/2019 13:00	9/19/2019 8:39	9/18/2019 18:02	9/18/2019 15:29	9/15/2019 23:16	9/6/2019 21:00	9/6/2019 20:27	9/3/2019 13:00	9/3/2019 5:00	9/3/2019 4:44	9/1/2019 13:13	9/1/2019 9:45	9/1/2019 2:48	9/1/2019 1:44	8/31/2019 18:59	Bypass Period	5d)
	9/22/2019 21:35	9/22/2019 21:00	9/21/2019 17:09	9/19/2019 14:07	9/19/2019 13:00	9/18/2019 19:19	9/18/2019 17:50	9/15/2019 23:31	9/6/2019 21:15	9/6/2019 21:00	9/3/2019 20:20	9/3/2019 13:00	9/3/2019 5:00	9/1/2019 13:18	9/1/2019 10:24	9/1/2019 5:00	9/1/2019 2:21	8/31/2019 20:07	period	5e)
88	35	57	34	67	261	77	141	ਲੰ	5	33	440	480	6	<i>Ο</i> Ί	39	132	37	68 8	monitor bypass (min)	5f)
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	operating during bypass period?	5g) Was P.C.E.
88	35	57	34	67	261	77	141	15	15	33	440	480	16	5	39	132	37	68	allowable monitor bypass (min)	5h)
Bypass necessary to protect plant equipment	brotect plant equipment	Bypass necessary to protect plant equipment	Bypass necessary to protect plant equipment	bypass necessary to protect plant equipment	protect plant equipment	protect plant equipment	protect plant equipment	protect plant equipment	Bypass necessary to protect plant equipment	bypass (clarifying comments)	5i) Reason for monitor									
t N/A	t N/A	N/A	t N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	action taken (clarifying comments)	5j) Corrective

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				,	Line 2	5a) Monitor ID number										
					SV 051	Emission Unit Required to be Monitored										
					NOx and SO2	Pollutant and Limit Required to be Monitored										
					9/30/2019 15:17	9/27/2019 13:00	9/27/2019 11:46	9/27/2019 7:32	9/27/2019 2:32	9/27/2019 0:43	9/26/2019 23:12	9/26/2019 22:32	9/26/2019 21:00	9/26/2019 17:15	9/26/2019 13:00	5d) Beginning Date and Time of Bypass Period
					9/30/2019 15:22	9/27/2019 15:02	9/27/2019 13:00	9/27/2019 9:53	9/27/2019 2:43	9/27/2019 2:31	9/26/2019 23:21	9/26/2019 22:49	9/26/2019 22:31	9/26/2019 21:00	9/26/2019 14:10	5e) End date and time of bypass period
	<u> </u>	 	<u> </u>	1	<u>ე</u>	122	74	140	12	109	10	17	91	225	70	Duration of monitor bypass (min)
					Yes	5g) Was P.C.E. operating during bypass period?										
					ე ე	122	74	140	12	109	10	17	91	225	70	Duration of allowable monitor bypass (min)
					protect plant equipment	Bypass necessary to protect plant equipment	Reason for monitor bypass (clarifying comments)									
					N/A	NA	N/A	N/A	N/A	Corrective action taken (clarifying comments)						

Monitor ID number 5a) 5b) 5c)
Emission Pollutant
Unit and Limit
Required to Required to Monitored Monitored Beginning Date and Time of Bypass Period 5k) Total duration of allowable monitor bypass: End date and time of bypass period Duration of bypass monitor (min) 55) f Was P.C.E. operating during bypass period? bypass (min) Duration of allowable monitor 5h) 124 Reason for monitor bypass (clarifying comments) hours Corrective action taken (clarifying comments) <u>5</u>j)

COMS audits								
Subject item	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A			244					
Cylinder gas audit's (CGA)	audit's (Co	3A)						
Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	due by:	Comments
- 1				0/5/2010	Low 0.77%		12/31/2019	
SV031/E0030	2200	ORIGO -			Low 4.15%			
SV051/EU030	2205	CM005	SO2	9/5/2019	Mid 3.58% Pass	Pass	12/31/2019	
Hipparamon aleksanya samanawanya	WARTE CONTRACTOR OF THE CONTRA	200						
Linearity								
	Operating	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
Lilliogicis dine	Society	:			Low	:		
N/A	100 Mag.				11911			
Relative accuracy test audit (RATA)	uracy test	audit (RAT	A)					
Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Relative accuracy	Pass/fail	Next test due by:	Comments
SV051		CM001	NO _×	3/19/2019	9.4%	Pass	3/31/2020	
			000	3/10/2019	n 4%	Pass	3/31/2020	
SVUSI		CMOCO						

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature of Responsible Official Sarah

Printed Name of Responsible Official Lawrence Sutherland

General Manager- Minnesota Ore Title

Date 00, 29, 3019

CGA Test Report

Facility Name: US Steel KeeTac

Location: ,

NOX WGS Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AE-920-10086-1

Test Date: 9/5/2019

Tester: NICHOLAS

WILSON

Analyzer Span: 600.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(120.000 PPMW - 180.000 PPMW)	(300.000 PPMW - 360.000 PPMW)
Concentration	130.000	324.000
Cylinder No	CC422243	CC322615
Expiration Date	2/24/2021	8/30/2024

	Lo)Ŵ	M	id
	Time	Monitor Value	Time	Monitor Value
Run 1	10:17	131.000	10:20	326.000
Run 2	11:17	131.000	11:20	325,000
Run 3	12:17	131.000	12:20	325.000
Avg Monitor Response		131.000		325.333
Calibration Error		0.77		0.41
Absolute Diff		1.000		1.333
Test Status		PASSED		PASSED

Avg. Monitor Response - Cal. Gas Concentration

Calibration Error = _______X 100

Cal. Gas Concentration

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Facility Name: US Steel KeeTac

Location: ,

SO2 WGS Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AE-920-10086-1

Test Date: 9/5/2019

Tester: NICHOLAS WILSON

Analyzer Span: 250.000 PPMW

!	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(50.000 PPMW - 75.000 PPMW)	(125.000 PPMW - 150.000 PPMW)
Concentration	62.600	141.400
Cylinder No	CC168937	SG9169308BAL
Expiration Date	11/8/2020	10/22/2020

	Lc)W	M	id -
	Time	Monitor Value	Time	Monitor Value
Run 1	08:07	60.000	08:10	137.000
Run 2	09:07	60.000	09:10	136,000
Run 3	10:07	60,000	10:10	136.000
Avg Monitor Response		60.000		136,333
Calibration Error		4.15		3.58
Absolute Diff		2.600		5,067
Test Status		PASSED		PASSED

Calibration Error = _	Avg. Monitor Response - Cal. Gas Concentration	X 100
Calibration Life	Cal. Gas Concentration	

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

Summary Table by Monitor Downtime Type U. S. Steel - Keetac 3rd Quarter 2019

NOx

Line	Duration (Hrs)	Description					
Line 2	5	Automatic Calibration					
	0	Data Handling System Malfunction					
	1	Sample Interface Malfunction					
	0	Excess Drift Primary Analyzer					
	0	Primary Analyzer Malfunction					
	0	Preventative Maintenance					

SO2

Line	Duration (Hrs)	Description
Line 2	6	Automatic Calibration
	0	Data Handling System Malfunction
	1	Sample Interface Malfunction
	0	Excess Drift Primary Analyzer
	7	Primary Analyzer Malfunction
	0	Preventative Maintenance

Attachment 1 - Duration of Excess Emissions Table

Emission	Monitor	Pollutant	Emission Monitor Pollutant Date of EE	Beginning and	Magnitude of the EE	Cause of EE	Corrective or Preventative
Unit ID	<u></u>			end time of EE			Actions Taken
SV051	CM001	×ON	9/8/19-	Daily- 9/8/19-	NOx emissions have not	The USEPA Federal	U. S. Steel – Keetac is actively in
			9/30/19	9/30/19	increased at U. S. Steel -	Implementation Plan for	mediation with USEPA regarding the
					Keetac. The applicable limit	Regional Haze for Keetac	FIP NOx limits. During this
					is significantly lower than	which established significantly	mediation process, U. S. Steel has
					Keetac's historic emissions	more stringent limits became	completed studies regarding Keetac
					 using good combustion 	effective on September 8,	emissions in an effort to reach
					practices. Because the FIP	2019. This limit is currently	resolution. USEPA is reviewing
					limit is significantly more	under judicial review in the	these materials. In the meantime,
					stringent than the existing	U.S. Court of Appeals for the	U. S. Steel – Keetac is relying on
					state standard, the	Eighth Circuit in which U. S.	good combustion practices to
					emissions at Keetac,	Steel has challenged the	minimize emissions while avoiding
					despite good combustion	technological and economical	impacts to safety and pellet quality.
					practices are substantially	feasibility of the limit. There is	
					higher than the existing FIP	also ongoing mediation	
					limit.	between U. S. Steel and USEPA	
						to resolve that case and to	
						develop revised NOx limits.	The second secon
SV051	CM005	202	N/A	N/A	N/A	N/A	N/A



CERTIFIED MAIL 7018 3090 0001 9999 0221

October 29, 2019

Air Quality Compliance Tracking Coordinator Minnesota Pollution Control Agency 520 Lafayette Road North St. Paul, MN 55155-4194

Re:

United States Steel Corporation, Minnesota Ore Operations – Minntac Air Emissions Permit No. 13700005-006

Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Minntac's (Minntac) Quarterly Excess Emissions Reporting Form for the 3rd quarter of 2019. NOx/SO₂ Continuous Emission Monitoring Systems (CEMS) are certified on all Agglomerator Waste Gas Lines.

Deviations associated with Emission Limits

There were no deviations during the 3rd quarter of 2019.

Deviations associated with Monitor Downtime

There were 102 instances of monitor downtime for either NOx or SO₂. The individual downtime durations and causes are listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

Minntac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500°F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x or SO_2 is emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,

Lawrence Sutherland

General Manager – Minnesota Ore Operations

Enclosure

cc: Steve Palzkill – MPCA

File



520 Lafayette Road North St. Paul, MN 55155-4194

Excess Emissions Reporting Form

Air Quality Permit Program Doc Type: Excess Emission Report

Note: Please complete, and remit only the forms. Please see the instructions to ensure proper use and understanding of definitions. Do not print and return the instructions.

General Information about Deviation and Compliance Reporting

If your permit requires you to submit deviation reports or an annual compliance certification, you should use the Deviation Reporting Forms (DRFs) and Annual Compliance Certification Report (CR-04), unless you get Minnesota Pollution Control Agency (MPCA) approval to use another format or your facility's permit specifies otherwise. There are two separate DRF forms: DRF-1 and DRF-2.

is used to report direct excess stack emissions (EE) recorded by Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems

DRF-2

is used to report deviations recorded by periodic monitoring systems, deviations of permitted operating conditions and surrogate parameters whether recorded

Some examples: flow rate, temperature, throughput, control equipment operating parameters, fuel-use records

CR-04:

is used to report facility compliance status at the end of each year if required by your permit.

Address hard copy report submittals to: Air Compliance Tracking Coordinator, Minnesota Pollution Control Agency

520 Lafayette Road North, St. Paul, Minnesota 55155-4195

Or e-mail a signed and

AQRoutineReport.PCA@state.mn.us

scanned PDF copy to:

(see e-mail instructions in "Routine Air Report Instructions Letter" at:

http://www.pca.state.mn.us/nwqh472

1) General Facility Information

Facility name:

United States Steel Corporation, Minnesota Ore Operations, Minntac

County:

St. Louis

AQ permit #: Year:

13700005 2019

Report covers quarter: Third

				Duration of Downt	- Committee of the Australian Committee	Di	uration of Ex	cess Emissions ((EE)
2a)	2b)	2c)	2d)	3i)	2e)	41)	2f)	4m)	2g)
Monitor ID Number	Monitor ID Pollutant	EU/SV ID Number	Total Operating Time (TOT)	Total Duration of Monitor Downtime (hr)	Downtime % Of TOT	Cumulative Duration of Exempt EE	Exempt EE % of TOT	Cumulative Total Duration of All EE	Total EE % of TOT
MR 001	NOx	SV-103	2120	10	0.5%	0	0%	0	0%
MR 002	NOx	SV-118	2084	9	0.4%	0	0%	0	0%
MR 003	NOx	SV-127	2104	11	0.5%	0	0%	0	0%
MR 004	NOx	SV-144	2156	45	2.1%	0	0%	0	0%
MR 005	NOx	SV-151	2165	51	2.4%	0	0%	0	0%
MR 001	SO2	SV-103	2120	22	1.0%	0	0%	0	0%
MR 002	SO2	SV-118	2084	9	0.4%	0	0%	0	0%
MR 003	SO2	SV-127	2104	11	0.5%	0	0%	0	0%
MR 004	SO2	SV-144	2156	46 .	2.1%	0	0%	0	0%
MR 005	SO2	SV-151	2165	51	2.4%	0	0%	0	0%

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

	or, as needed		0-0	20)	26	3g)	3h)
3a)	3b)	3c)	3d)	3e) End Date and Time of	3f) Duration of	Reason for Monitor	Corrective ActionTaken
Monitor ID Number	Pollutant or parameter	Emission Unit Being	Beginning Date and Time of Downtime	Downtime	Downtime	Downtime	(clarifying comments)
	monitored	Monitored			(minutes)	(clarifying comments)	
Line 3	NOx	SV103	07/11/2019 05:00:00	07/11/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	08/04/2019 05:00:00	08/04/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	08/04/2019 06:00:00	08/04/2019 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	NOx	SV103	08/26/2019 12:00:00	08/26/2019 14:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	NOx	SV103	09/12/2019 05:00:00	09/12/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	09/20/2019 08:00:00	09/20/2019 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/11/2019 05:00:00	07/11/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	07/29/2019 11:00:00	07/29/2019 11:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/04/2019 05:00:00	08/04/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/04/2019 06:00:00	08/04/2019 08:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 3	SO2	SV103	08/20/2019 19:00:00	08/21/2019 04:59:00	600	Sample Interface Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	08/21/2019 05:00:00	08/21/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	08/26/2019 12:00:00	08/26/2019 14:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	09/12/2019 05:00:00	09/12/2019 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	09/20/2019 08:00:00	09/20/2019 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	07/02/2019 06:00:00	07/02/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	08/13/2019 06:00:00	08/13/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	08/26/2019 12:00:00	08/26/2019 14:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	08/27/2019 06:00:00	08/27/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	08/29/2019 06:00:00	08/29/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	08/30/2019 06:00:00	08/30/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	09/13/2019 06:00:00	09/13/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	07/02/2019 06:00:00	07/02/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/13/2019 06:00:00	08/13/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/26/2019 12:00:00	08/26/2019 14:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	08/27/2019 06:00:00	08/27/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/29/2019 06:00:00	08/29/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	08/30/2019 06:00:00	08/30/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	09/13/2019 06:00:00	09/13/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	07/24/2019 06:00:00	07/24/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	07/29/2019 14:00:00	07/29/2019 18:59:00	300	Sample Interface Malfunction	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

	or, as needed		·				60.
3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)
Monitor iD	Pollutant or	Emission	Beginning Date and	End Date and Time of	Duration of	Reason for Monitor	Corrective ActionTaken
Number	parameter	Unit Being	Time of Downtime	Downtime	Downtime	Downtime	(clarifying comments)
ļ	monitored	Monitored			(minutes)	(clarifying comments)	
line E	NOv	SV127	08/26/2019 12:00:00	08/26/2019 14:59:00	180	Primary Analyzer	Performed necessary
Line 5	NOx	57127	08/26/2019 12.00.00	00/20/2019 14.09.00	100	Malfunction	maintenance
Line 5	NOx	SV127	09/12/2019 06:00:00	09/12/2019 06:59:00	60	Automatic Calibration	Performed necessary
Line 0	INOX	OVIZI	00/12/2010 00:00:00	00/12/2010 00:00:00			maintenance
Line 5	NOx	SV127	09/19/2019 11:00:00	09/19/2019 11:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
							Performed necessary
Line 5	SO2	SV127	07/24/2019 06:00:00	07/24/2019 06:59:00	60	Automatic Calibration	maintenance
		014407	07/08/09/0	07/00/0040 40/50/00	000	Sample Interface	Performed necessary
Line 5	SO2	SV127	07/29/2019 14:00:00	07/29/2019 18:59:00	300	Malfunction	maintenance
Line 5	SO2	SV127	08/26/2019 12:00:00	08/26/2019 14:59:00	180	Primary Analyzer	Performed necessary
Line o	002	01127	00/20/2010 12:00:00	00/20/20 17:00:00		Malfunction	maintenance
Line 5	SO2	SV127	09/12/2019 06:00:00	09/12/2019 06:59:00	60	Automatic Calibration	Performed necessary maintenance
			,			Sample Interface	Performed necessary
Line 5	SO2	SV127	09/19/2019 11:00:00	09/19/2019 11:59:00	60	Malfunction	maintenance
				07/04/0040 04 50 00	000	Secondary Analyzer	Performed necessary
Line 6	NOx	SV144	07/01/2019 00:00:00	07/01/2019 04:59:00	300	Malfunction	maintenance
Lina C	NOx	SV144	07/24/2019 09:00:00	07/24/2019 11:59:00	180	Secondary Analyzer	Performed necessary
Line 6	NOX	37144	0772472019 09.00.00	0112412019 11.09.00	100	Malfunction	maintenance
Line 6	NOx	SV144	08/03/2019 21:00:00	08/04/2019 05:59:00	540	Primary Analyzer	Performed necessary
2,110 0	110%	91111				Malfunction	maintenance Performed necessary
Line 6	NOx	SV144	08/04/2019 06:00:00	08/04/2019 06:59:00	60	Automatic Calibration	maintenance
-						Primary Analyzer	Performed necessary
Line 6	NOx	SV144	08/04/2019 07:00:00	08/04/2019 08:59:00	120	Malfunction	maintenance
	110	02444	00/04/0040 40/00/00	00/04/2040 40-50-00	600	Primary Analyzer	Performed necessary
Line 6	NOx	SV144	08/04/2019 10:00:00	08/04/2019 19:59:00	600	Malfunction	maintenance
Line 6	NOx	SV144	08/15/2019 06:00:00	08/15/2019 06:59:00	60	Automatic Calibration	Performed necessary
rille 0	NOX	37177	00/10/2010 00,00.00	00/10/2010 00:00:00			maintenance
Line 6	NOx	SV144	08/20/2019 10:00:00	08/20/2019 10:59:00	60	Primary Analyzer Malfunction	Performed necessary
							maintenance Performed necessary
Line 6	NOx	SV144	08/21/2019 06:00:00	08/21/2019 06:59:00	60	Automatic Calibration	maintenance
				22/2//22/2 /2 52 22	200	Primary Analyzer	Performed necessary
Line 6	NOx	SV144	08/21/2019 07:00:00	08/21/2019 16:59:00	600	Malfunction	· maintenance
Line 6	NOx	SV144	08/28/2019 06:00:00	08/28/2019 06:59:00	60	Automatic Calibration	Performed necessary
Life	NOX	QV 1 7-7	00/20/2010 00:00:00	00/20/2010 00:00:00		Tratomatio oansidaton	maintenance
Line 6	NOx	SV144	08/30/2019 07:00:00	08/30/2019 07:59:00	60	Automatic Calibration	Performed necessary maintenance
						Secondary Analyzer	Performed necessary
Line 6	SO2	SV144	07/01/2019 00:00:00	07/01/2019 04:59:00	300	Malfunction	maintenance
12. 0		CV444	07/24/2019 09:00:00	07/24/2019 11:59:00	180	Secondary Analyzer	Performed necessary
Line 6	. SO2	SV144	0712412019 09.00.00	0112412019 11.59.00	100	Malfunction	maintenance
Line 6	SO2	SV144	08/03/2019 21:00:00	08/04/2019 05:59:00	540	Primary Analyzer	Performed necessary maintenance
	-				-	<u>Malfunction</u>	Performed necessary
Line 6	SO2	SV144	08/04/2019 06:00:00	08/04/2019 06:59:00	60	Automatic Calibration	maintenance
		<u> </u>				Primary Analyzer	Performed necessary
Line 6	SO2	SV144	08/04/2019 07:00:00	08/04/2019 08:59:00	120	Malfunction	maintenance
1. 0		0)////	00/04/0040 40/00/00	08/04/2019 19:59:00	600	Primary Analyzer	Performed necessary
Line 6	SO2	SV144	08/04/2019 10:00:00	08/04/2019 19.59.00	800	Malfunction	maintenance
Line 6	SO2	SV144	08/15/2019 06:00:00	08/15/2019 06:59:00	60	Automatic Calibration	Performed necessary
LING 0		OVITT		33.00.00		Primary Analyzer	maintenance Performed necessary
Line 6	SO2	SV144	08/20/2019 10:00:00	08/20/2019 10:59:00	60	Malfunction	maintenance
							Performed necessary
Line 6	SO2	SV144	08/21/2019 06:00:00	08/21/2019 06:59:00	60	Automatic Calibration	maintenance
13. 0	200	0)/4.44	00/04/0040 07/00/00	08/21/2019 16:59:00	600	Primary Analyzer	Performed necessary
Line 6	SO2	SV144	08/21/2019 07:00:00	00/2 11/2019 10.59.00	000	Malfunction	maintenance
Line 6	SO2	SV144	08/28/2019 06:00:00	08/28/2019 06:59:00	60	Automatic Calibration	Performed necessary
THE 0		UV 1777	35/25/2010 00,00.00	30,20,2010 30.00.00	- 50		maintenance
Line 6	SO2	SV144	08/30/2019 07:00:00	08/30/2019 07:59:00	60	Automatic Calibration	Performed necessary maintenance
					 		Performed necessary
Line 6	SO2	SV144	09/12/2019 06:00:00	09/12/2019 06:59:00	60	Automatic Calibration	maintenance
				07/04/0040 04 50 55	000	Secondary Analyzer	Performed necessary
Line 7	NOx	SV151	07/01/2019 00:00:00	07/01/2019 04:59:00	300	Maifunction	maintenance
Line 7	NOx	SV151	07/02/2019 07:00:00	07/02/2019 07:59:00	60	Automatic Calibration	Performed necessary
Line /	I NOX	0 131	3110212013 01.00.00	3770212010 37.00.00			maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3h) 3b) 3c) 3d) 3e) 3f) 3g) 3a) End Date and Time of Duration of Reason for Monitor Corrective ActionTaken Monitor ID Pollutant or Emission Beginning Date and Unit Being Downtime Downtime (clarifying comments) parameter Time of Downtime Downtime Number (clarifying comments) (minutes) monitored Monitored Performed necessary Automatic Calibration 07/02/2019 10:59:00 SV151 07/02/2019 10:00:00 60 Line 7 NOx maintenance Performed necessary 07/10/2019 11:00:00 07/10/2019 11:59:00 60 Automatic Calibration NOx SV151 1 ine 7 maintenance Performed necessary 07/12/2019 07:59:00 60 Automatic Calibration SV151 07/12/2019 07:00:00 Line 7 NOx maintenance Secondary Analyzer Performed necessary 180 07/24/2019 09:00:00 07/24/2019 11:59:00 NOx SV151 Line 7 maintenance Malfunction Primary Analyzer Performed necessary 08/04/2019 05:59:00 540 SV151 08/03/2019 21:00:00 Line 7 NOx maintenance Malfunction Performed necessary Automatic Calibration 08/04/2019 06:00:00 08/04/2019 07:59:00 120 NOx SV151 Line 7 maintenance Primary Analyzer Performed necessary 08/04/2019 08:59:00 60 SV151 08/04/2019 08:00:00 Line 7 NOx Malfunction maintenance Performed necessary Primary Analyzer 240 08/04/2019 13:59:00 NOx SV151 08/04/2019 10:00:00 Line 7 Malfunction maintenance Performed necessary Automatic Calibration 08/04/2019 14:59:00 60 Line 7 NOx SV151 08/04/2019 14:00:00 maintenance Primary Analyzer Performed necessary 08/04/2019 15:00:00 08/04/2019 19:59:00 300 SV151 Line 7 NOx Malfunction maintenance Performed necessary Automatic Calibration 08/20/2019 07:59:00 120 SV151 08/20/2019 06:00:00 NOx Line 7 maintenance Performed necessary Automatic Calibration 120 08/21/2019 06:00:00 08/21/2019 07:59:00 NOx SV151 Fine 7 maintenance Performed necessary Primary Analyzer SV151 08/21/2019 08:00:00 08/21/2019 15:59:00 480 Line 7 NOx Malfunction maintenance Performed necessary 60 Automatic Calibration 08/21/2019 16:00:00 08/21/2019 16:59:00 NOx SV151 Line 7 maintenance Performed necessary 60 Automatic Calibration 09/01/2019 07:00:00 09/01/2019 07:59:00 Line 7 NOx SV151 <u>maintenance</u> Performed necessary 09/11/2019 19:59:00 60 Automatic Calibration SV151 09/11/2019 19:00:00 Line 7 NOx maintenance Performed necessary 09/12/2019 06:00:00 09/12/2019 07:59:00 120 Automatic Calibration NOx SV151 Line 7 maintenance Secondary Analyzer Performed necessary 300 SV151 07/01/2019 00:00:00 07/01/2019 04:59:00 Line 7 SO₂ Malfunction maintenance Performed necessary 60 Automatic Calibration 07/02/2019 07:59:00 Line 7 S₀₂ SV151 07/02/2019 07:00:00 maintenance Performed necessary Automatic Calibration 07/02/2019 10:59:00 60 07/02/2019 10:00:00 Line 7 SO2 SV151 maintenance Performed necessary Automatic Calibration 07/10/2019 11:00:00 07/10/2019 11:59:00 60 SO2 SV151 Line 7 maintenance Performed necessary 07/12/2019 07:59:00 60 **Automatic Calibration** SO2 SV151 07/12/2019 07:00:00 Line 7 maintenance Secondary Analyzer Performed necessary 07/24/2019 09:00:00 07/24/2019 11:59:00 180 S₀₂ SV151 Line 7 Malfunction maintenance Performed necessary Primary Analyzer 540 Line 7 SO2 SV151 08/03/2019 21:00:00 08/04/2019 05:59:00 Malfunction maintenance Performed necessary 120 Automatic Calibration 08/04/2019 07:59:00 08/04/2019 06:00:00 Line 7 SO2 SV151 maintenance Performed necessary Primary Analyzer 08/04/2019 08:00:00 08/04/2019 08:59:00 60 SV151 Line 7 SO2 Malfunction maintenance Primary Analyzer Performed necessary 240 08/04/2019 10:00:00 08/04/2019 13:59:00 SO2 SV151 Line 7 maintenance Malfunction Performed necessary SV151 08/04/2019 14:00:00 08/04/2019 14:59:00 60 Automatic Calibration SO₂ Line 7 maintenance Performed necessary Primary Analyzer 300 S02 SV151 08/04/2019 15:00:00 08/04/2019 19:59:00 Line 7 Malfunction maintenance Performed necessary 08/20/2019 07:59:00 Automatic Calibration 120 Line 7 SO2 SV151 08/20/2019 06:00:00 maintenance Performed necessary 08/21/2019 07:59:00 08/21/2019 06:00:00 120 Automatic Calibration Line 7 SO2 SV151 maintenance Primary Analyzer Performed necessary 08/21/2019 08:00:00 08/21/2019 15:59:00 480 SO2 SV151 Line 7 Malfunction <u>maintenance</u> Performed necessary SV151 08/21/2019 16:00:00 08/21/2019 16:59:00 60 Automatic Calibration SO2 Line 7 maintenance Performed necessary 60 Automatic Calibration SO2 SV151 09/01/2019 07:00:00 09/01/2019 07:59:00 Line 7 maintenance Performed necessary 60 Automatic Calibration SV151 09/11/2019 19:00:00 09/11/2019 19:59:00 Line 7 SO₂ maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for

asch	monitor	90	needed.	

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)
Monitor ID Number	Pollutant or parameter monitored	Emission Unit Being Monitored	Beginning Date and Time of Downtime	End Date and Time of Downtime	Duration of Downtime (minutes)	Reason for Monitor Downtime (clarifying comments)	Corrective ActionTaken (clarifying comments)
Line 7	SO2	SV151	09/12/2019 06:00:00	09/12/2019 07:59:00	120	Automatic Calibration	Performed necessary maintenance
			3i) Tot	al duration of downtime:	265	hours	

4) Duration of Excess Emissions: Provide the following information regarding each individual excess

emission identified by a monitor. Make a separate table for each monitor, as needed.

4a)	4b)	4c)	4d)	4e)	4f)	4g)	4h)	4i)	4j)	4k)
Emission	Monitor	Pollutant or	Beginning	End Date	Limit and	Highest	Duration of	Total	Cause of EE	Corrective Action
Unit ID	ID	Parameter	Date and	and Time	Averaging	Reading of	Exempt EE	Duration of	(clarifying	Taken (clarifying
Number	Number	Monitored	Time of EE	of EE	Period	EE with	(include	All EE	comments)	comments)
	IAGILIDO					Units	these			
					1	(example: 5	entries as			
						lb/hr, etc)	part of 4i)			
SV-103	MR 001	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-118	MR 002	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-127	MR 003	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-144	MR 004	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-151	MR 005	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
	L	4I) Cur	nulative Dur	ation of Exe	mpt Excess	Emissions:		0	4m) Cumulai	tive Total (

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

Sa Sb Sc Sc Sd Se Se Sd Se Sf Sg Sh Si Si Si Si Si Si Si	Corrective action taken (clarifying comments) N/A N/A N/A N/A N/A N/A N/A
Emission Onity Required to be Monitored Imit Required to be Imit Required to protect plant Imit Required to be Imit Required to protect plant Imi	(clarifying comments) N/A N/A N/A N/A N/A
Nomition Nomition	N/A N/A N/A N/A N/A
Line 3 SV103 NOx/SO2 7/2/19 8:34 7/2/19 13:04 270 YES 270 protect plant equipment. Line 3 SV103 NOx/SO2 7/9/19 23:56 7/10/19 0:59 63 YES 63 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 17:59 7/10/19 19:00 61 YES 61 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A N/A N/A
Line 3 SV103 NOx/SO2 7/2/19 8:34 7/2/19 13:04 270 YES 270 protect plant equipment. Line 3 SV103 NOx/SO2 7/9/19 23:56 7/10/19 0:59 63 YES 63 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 17:59 7/10/19 19:00 61 YES 61 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A N/A N/A
Line 3 SV103 NOx/SO2 7/9/19 23:56 7/10/19 0:59 63 YES 63 Bypass necessary to protect plant equipment.	N/A N/A N/A
Line 3 SV103 NOx/SO2 7/9/19 23:56 7/10/19 0:59 63 YES 63 Bypass necessary to protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/9/19 23:56 7/10/19 0:59 63 YES 63 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 17:59 7/10/19 19:00 61 YES 61 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Bypass necessary to protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/9/19 23:56 7/10/19 0:59 63 YES 63 protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/10/19 17:59 7/10/19 19:00 61 YES 61 Bypass necessary to protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/10/19 17:59 7/10/19 19:00 61 YES 61 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/10/19 17:59 7/10/19 19:00 61 YES 61 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 Bypass necessary to protect plant equipment.	N/A N/A
Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A
Line 3 SV103 NOx/SO2 7/10/19 19:00 7/10/19 22:30 210 YES 210 protect plant equipment. Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A
Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 Protect plant equipment.	N/A
Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	
Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	
Line 3 SV103 NOx/SO2 7/10/19 22:30 7/11/19 6:30 480 YES 480 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	
Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 Protect plant equipment. Bypass necessary to requipment Bypass necessary to protect plant equipment. Bypass necessary to protect plant equipment. Bypass necessary to protect plant equipment. SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 Protect plant equipment. SV103 SV103 NOx/SO2 T/11/19 7:00 T/11/19 14:30 A50 YES A50 Protect plant equipment. SV103 SV103 NOx/SO2 T/11/19 7:00 T/11/19 14:30 A50 YES A50 Protect plant equipment. SV103 SV103 NOx/SO2 T/11/19 7:00 T/11/19 14:30 A50 YES A50 Protect plant equipment. SV103 SV103 SV103 NOx/SO2 T/11/19 7:00 T/11/19 14:30 A50 YES A50 Protect plant equipment. SV103 SV10	
Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 Bypass necessary to protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A
Line 3 SV103 NOx/SO2 7/11/19 6:30 7/11/19 7:00 29 YES 29 protect plant equipment. Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A
Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	N/A
Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 Bypass necessary to protect plant equipment.	
Line 3 SV103 NOx/SO2 7/11/19 7:00 7/11/19 14:30 450 YES 450 protect plant equipment.	
equipment.	
	N/A
Bypass necessary to	
Line 3 SV103 NOx/SO2 7/11/19 14:30 7/11/19 16:13 103 YES 103 protect plant	N/A
equipment.	
Bypass necessary to	
	N/A
Line 3 SV103 NOx/SO2 7/11/19 16:31 7/11/19 19:00 149 YES 149 protect plant	IWA
equipment.	
Bypass necessary to	
Line 3 SV103 NOx/SO2 7/11/19 19:00 7/11/19 22:01 181 YES 181 protect plant	N/A
equipment.	
Bypass necessary to	
Line 3 SV103 NOx/SO2 7/17/19 22:11 7/17/19 22:30 19 YES 19 protect plant	N/A
equipment.	i
Bypass necessary to	
	N/A
DAG 5 5,105 1.3.2502	14,71
equipment. Bypass necessary to	
	37/4
Line 3 SV103 NOx/SO2 7/25/19 19:15 7/25/19 19:34 20 YES 20 protect plant	N/A
equipment.	
Bypass necessary to	
Line 3 SV103 NOx/SO2 7/25/19 19:38 7/25/19 19:56 18 YES 18 protect plant	N/A
equipment.	
Bypass necessary to	
Line 3 SV103 NOx/SO2 8/13/19 3:03 8/13/19 4:54 111 YES 111 protect plant	N/A
Lille 5 3 \(\forall \) 103 1\(\forall \) 13/15 5.05 6/15/15 4.54 111 112 111 125 111 125 111 125 111 125 111 125	
Bypass necessary to	
	NT/A
Line 3 SV103 NOx/SO2 8/16/19 8:06 8/16/19 8:12 7 YES 7 protect plant	N/A
equipment.	
Bypass necessary to	
Line 3 SV103 NOx/SO2 9/6/19 16:26 9/6/19 17:27 62 YES 62 protect plant	N/A
equipment.	
Bypass necessary to	
Line 3 SV103 NOx/SO2 9/8/19 22:58 9/8/19 23:59 61 YES 61 protect plant	N/A
Line 3 5 V 103 NOX/302 9/8/19 22:.38 9/8/19 23:39 01 1120 01 protect plant equipment.	-
Bypass necessary to	
	NY/A
Line 3 SV103 NOx/SO2 9/11/19 22:59 9/12/19 6:30 451 YES 451 protect plant	N/A
equipment.	i

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
NA:4	Fasicales I bit	Dallutant and	Beginning Date	End date and	Duration of	Was P.C.E.	Duration of	Reason for monitor	Corrective
Monitor	Emission Unit	Pollutant and	and Time of		monitor	operating	allowable	bypass (clarifying	action taken
ID	Required to be	Limit Required		time of bypass	bypass	during bypass	monitor	comments)	(clarifying
number	Monitored	to be Monitored	Bypass Period	period	(minutes)	period?	bypass	comments)	comments)
							· · · · · · · · · · · · · · · · · · ·	Bypass necessary to	
T : 2	SV103	NOx/SO2	9/12/19 6:30	9/12/19 7:00	30	YES	30	protect plant	N/A
Line 3	24102	NOX/SOZ	9/12/19 0.30	7/12/17 /.00	30	11.5	30		14/17
								equipment.	
					•			Bypass necessary to	
Line 3	SV103	NOx/SO2	9/12/19 7:00	9/12/19 14:30	450	YES	450	protect plant	N/A
						1		equipment.	
								Bypass necessary to	
	5777.00	270 /000	0/10/10 14:30	0/10/10 10:00	270	YES	270	protect plant	N/A
Line 3	SV103	NOx/SO2	9/12/19 14:30	9/12/19 19:00	270	1 EQ	270		1/1/17
								equipment.	
							İ	Bypass necessary to	
Line 3	SV103	NOx/SO2	9/12/19 19:00	9/12/19 20:57	118	YES	118	protect plant	N/A
Daile 3	5,105	1107200	J. 12.					equipment.	
								Bypass necessary to	
				0/00/10 00 15	1	1777	1		NT/A
Line 3	SV103	NOx/SO2	9/20/19 22:30	9/20/19 22:45	15	YES	15	protect plant	N/A
								equipment.	
		İ''						Bypass necessary to	
Line 3	SV103	NOx/SO2	9/20/19 19:00	9/20/19 22:30	211	YES	211	protect plant	N/A
Eure 3	24102	1102002	3/20/13 13.00	7/20/17 22:30	211	. ~~~		equipment.	
							 		
								Bypass necessary to	3.774
Line 3	SV103	NOx/SO2	9/20/19 22:30	9/20/19 22:45	15	YES	15	protect plant	N/A
								equipment,	
					1			Bypass necessary to	
T : 4	017110	NOx/SO2	7/1/19 3:02	7/1/19 3:59	57	YES	57	protect plant	N/A
Line 4	SV118	NOX/SOZ	//1/19 3.02	111117 3.33	1 31	110] "		1,721
								equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	7/1/19 17:59	7/1/19 22:30	271	YES	271	protect plant	N/A
								equipment.	
								Bypass necessary to	
1	077110	NTO 1000	7/1/10 22-20	7/2/19 6:30	480	YES	480	protect plant	N/A
Line 4	SV118	NOx/SO2	7/1/19 22:30	1/2/19 0:30	400	1 1 1 1 1 1 1 1 1	400		14/17
		<u></u>						equipment.	
								Bypass necessary to	ľ
Line 4	SV118	NOx/SO2	7/2/19 6:30	7/2/19 7:00	30	YES	30	protect plant	N/A
2								equipment.	
					 			Bypass necessary to	
				7/0/10 10 07	216	YATEG.	216	'-	N/A
Line 4	SV118	NOx/SO2	7/2/19 7:00	7/2/19 10:36	216	YES	210	protect plant	INIA
					<u></u>			equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	7/2/19 10:56	7/2/19 12:27	91	YES	91	protect plant	N/A
						ļ		equipment.	
					+			Bypass necessary to	
	GT.11.0	270 /000	2/10/10 12:45	7/10/10 14:10	24	VEC	34	protect plant	N/A
Line 4	SV118	NOx/SO2	7/18/19 13:45	7/18/19 14:19	34	YES	34		17/73
								equipment.	
						1	ŀ	Bypass necessary to	
Line 4	SV118	NOx/SO2	7/20/19 2:41	7/20/19 3:52	71	YES	71	protect plant	N/A
Lincon	5,110	11011100	,,_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,_,,,,				equipment.	
	ļ	 	 		1	 	 	Bypass necessary to	
				= (0.0 (c. c. c. c. c.	_	1 7000			N1/A
Line 4	SV118	NOx/SO2	7/20/19 3:57	7/20/19 4:00	2	YES	2	protect plant	N/A
							<u> </u>	equipment.	
							1	Bypass necessary to	
Line 4	SV118	NOx/SO2	7/25/19 19:59	7/25/19 20:07	9	YES	9	protect plant	N/A
LTHIE 4	3 4 1 1 0	1102002	1,20,17,17.37	,,20,1,7 20,01	1 ´	122		equipment.	-
<u> </u>					1		-		
			1					Bypass necessary to	1
Line 4	SV118	NOx/SO2	7/29/19 20:29	7/29/19 22:10	101	YES	101	protect plant	N/A
1	I				1		1	equipment.	<u></u> _
——	 				1	T	1	Bypass necessary to	
T 2. 4	03/110	NOWIGO	7/30/19 15:53	7/30/19 16:09	17	YES	17	protect plant	N/A
Line 4	SV118	NOx/SO2	1130/19 13:33	60.01 61.0611	1 1/	""	"	equipment.	11111

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
-					Duration of	Was P.C.E.	Duration of	Reason for monitor	Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date and Time of	End date and time of bypass	monitor	operating	allowable	bypass (clarifying	action taken
ID number	Required to be Monitored	Limit Required to be Monitored	Bypass Period	period	bypass	during bypass	monitor	comments)	(clarifying
number	Montoreu	to be Montored	Dypass renou	period	(minutes)	period?	bypass	, i	comments)
		-						Bypass necessary to	
Line 4	SV118	NOx/SO2	8/1/19 8:52	8/1/19 9:52	-60	YES	60	protect plant	N/A
								equipment,	
·								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/8/19 9:52	8/8/19 11:24	91	YES	91	protect plant	N/A
							İ	equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/12/19 20:21	8/12/19 22:30	129	YES	129	protect plant	N/A
Line .	31,110	1101110	_, _, _, ,					equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/12/19 22:30	8/13/19 6:30	480	YES	480	protect plant	N/A
Luic 4	57116	RONBOZ	0/12/1/22:30	0,10,1,00	100			equipment.	
								Bypass necessary to	
774	037110	NOx/SO2	8/13/19 6:30	8/13/19 7:00	30	YES	30	protect plant	N/A
Line 4	SV118	NOX/302	6/13/19 0.30	0/15/19 1.00	30	1,55	1	equipment.	2
				<u></u>				Bypass necessary to	
		370 (000	0/13/10/100	0/32/10 14:30	450	YES	450	protect plant	N/A
Line 4	SV118	NOx/SO2	8/13/19 7:00	8/13/19 14:30	450	YES	430	1 - "	IV/A
								equipment.	
					2=0	1777.0	070	Bypass necessary to	DT/A
Line 4	SV118	NOx/SO2	8/13/19 14:30	8/13/19 19:00	270	YES	270	protect plant	N/A
						- · · · · · · · · · · · · · · · · · · ·	ļ	equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/13/19 19:00	8/13/19 20:19	80	YES	80	protect plant	N/A
								equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/27/19 4:38	8/27/19 6:30	112	YES	112	protect plant	N/A
						1		equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/27/19 6:30	8/27/19 7:00	29	YES	29	protect plant	N/A
								equipment.	
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/27/19 7:00	8/27/19 8:11	72	YES	72	protect plant	N/A
								equipment.	
—								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/27/19 14:59	8/27/19 15:59	60	YES	60	protect plant	N/A
2000	27,220	1107225						equipment.	
					1			Bypass necessary to	
Line 4	SV118	NOx/SO2	8/28/19 19:59	8/28/19 22:30	151	YES	151	protect plant	N/A
Line	57110	110,000	0.20,17					equipment.	
				<u> </u>	1		i	Bypass necessary to	
Line 4	SV118	NOx/SO2	8/28/19 22:30	8/29/19 6:30	480	YES	480	protect plant	N/A
Line	57110	NOWBOZ	0,23,19 22.50	0,2,,2,000	'**			equipment.	ļ
							1	Bypass necessary to	:
Line 4	SV118	NOx/SO2	8/29/19 6:30	8/29/19 7:00	29	YES	29	protect plant	N/A
Line 4	54116	ROXBOZ	0,25,15 0.50	0,2,71,71.00]			equipment.	
1								Bypass necessary to	1
T : 4	037110	NOx/SO2	8/29/19 7:00	8/29/19 14:30	450	YES	450	protect plant	N/A
Line 4	SV118	1402/202	0123/13/1.00	0/2//13/14/20	150	12.5		equipment.	
	 					<u> </u>	 	Bypass necessary to	
, ,	07/110	NO/502	8/29/19 14:30	8/29/19 15:07	37	YES	37	protect plant	N/A
Line 4	SV118	NOx/SO2	8/29/19 14:30	0/29/19 13:0/] 3/	1123	"	equipment.	1,112
								Bypass necessary to	
			0/00/10 5 5 5	0/20/10 100	150	3750	170		N/A
Line 4	SV118	NOx/SO2	8/30/19 3:31	8/30/19 6:30	179	YES	179	protect plant	IN/A
	<u> </u>					<u> </u>		equipment.	ļ
								Bypass necessary to	
Line 4	SV118	NOx/SO2	8/30/19 6:30	8/30/19 7:00	29	YES	29	protect plant	N/A
					1		1	equipment.	<u> </u>
					-				

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass	Was P.C.E. operating during bypass	Duration of allowable monitor	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying
Line 4	SV118	NOx/SO2	8/30/19 7:00	8/30/19 8:07	(minutes) 68	period? YES	bypass 68	Bypass necessary to protect plant	comments) N/A
Line 4	SV118	NOx/SO2	8/30/19 15:27	8/30/19 16:22	56	YES	56	equipment. Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/8/19 20:58	9/8/19 21:59	61	YES	61	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/12/19 7:59	9/12/19 14:30	691	YES	691	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/12/19 14:30	9/12/19 19:00	270	YES	270	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/12/19 19:00	9/12/19 22:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/12/19 22:30	9/13/19 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/13/19 6:30	9/13/19 7:00	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/13/19 7:00	9/13/19 12:04	305	YES	305	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/19/19 21:32	9/19/19 21:45	13	YES	13	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/20/19 13:51	9/20/19 14:30	39	YES	39	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/20/19 14:30	9/20/19 19:00	270	YES	270	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/20/19 19:00	9/20/19 20:09	69	YES	69	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/29/19 7:29	9/29/19 7:46	17	YES	17	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	9/29/19 7:50	9/29/19 7:56	6	YES	6	Bypass necessary to protect plant equipment. Bypass necessary	N/A
Line 5	SV127	NOx/SO2	7/1/19 8:07	7/1/19 8:27	21	YES	21	to protect plant equipment. Bypass necessary	N/A
Line 5	SV127	NOx/SO2	7/2/19 8:34	7/2/19 12:12	218	YES	218	to protect plant equipment. Bypass necessary	N/A
Line 5	SV127	NOx/SO2	7/2/19 13:51	7/2/19 14:29	38	YES	38	to protect plant equipment. Bypass necessary	N/A
Line 5	SV127	NOx/SO2	7/9/19 1:22	7/9/19 1:59	37	YES	37	to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
	E-inclass Unit	Dollutent and	Reginaing Dete	End date and	Duration of	Was P.C.E.	Duration of	Reason for monitor	Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date		monitor	operating	allowable	bypass (clarifying	action taken
ID	Required to be	Limit Required	and Time of	time of bypass	bypass	during bypass	monitor		(clarifying
number	Monitored	to be Monitored	Bypass Period	period	(minutes)	period?	bypass	comments)	comments)
Line 5	SV127	NOx/SO2	7/9/19 6:59	7/9/19 14:30	451	YES	451	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/9/19 14:30	7/9/19 15:09	39	YES	39	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/14/19 3:25	7/14/19 4:38	72	YES	72	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/22/19 23:02	7/23/19 23:59	57	YES	57	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/23/19 23:59	7/24/19 6:30	391	YES	391	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/24/19 6:30	7/24/19 7:00	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/24/19 7:00	7/24/19 13:52	412	YES	412	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/24/19 13:52	7/24/19 13:55	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/24/19 13:55	7/24/19 13:58	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/24/19 13:59	7/24/19 14:30	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/24/19 14:30	7/24/19 18:11	221	YES	221	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/29/19 14:07	7/29/19 14:30	23	YES	23	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	7/29/19 14:30	7/29/19 15:11	41	YES	41	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/9/19 7:58	8/9/19 9:54	116	YES	116	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/14/19 7:53	8/14/19 8:17	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/19 9:29	8/16/19 11:07	98	YES	98	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/19 12:12	8/16/19 14:25	133	YES	133	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/16/19 16:02	8/16/19 16:07	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/24/19 23:32	8/25/19 0:52	80	YES	80	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	8/29/19 14:05	8/29/19 14:10	5	YES	5	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Jaj					Duration of	Was P.C.E.	Duration of		Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date	End date and	monitor	operating	allowable	Reason for monitor	action taken
ID	Required to be	Limit Required	and Time of	time of bypass	bypass	during bypass	monitor	bypass (clarifying	(clarifying
number	Monitored	to be Monitored	Bypass Period	period	(minutes)	period?	bypass	comments)	comments)
Line 5	SV127	NOx/SO2	9/1/19 20:49	9/1/19 21:31	41	YES	41	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/4/19 9:23	9/4/19 11:15	112	YES	112	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/8/19 21:56	9/8/19 22:59	63	YES	63	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/12/19 0:59	9/12/19 6:30	691	YES	691	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/12/19 6:30	9/12/19 7:00	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Lìne 5	SV127	NOx/SO2	9/12/19 7:00	9/12/19 14:30	450	YES	450	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/12/19 14:30	9/12/19 19:00	270	YES	270	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/12/19 19:00	9/12/19 22:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/12/19 22:30	9/12/19 23:24	54	YES	54	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/13/19 0:09	9/13/19 0:52	43	YES	43	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/13/19 2:02	9/13/19 5:25	203	YES	203	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/13/19 8:18	9/13/19 8:25	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/19/19 10:05	9/19/19 12:09	124	YES	124	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/25/19 15:42	9/25/19 19:00	197	YES	197	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/25/19 19:00	9/25/19 22:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/25/19 22:30	9/26/19 0:40	130	YES	130	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/29/19 18:24	9/29/19 19:00	35	YES	35	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	9/29/19 19:00	9/29/19 19:06	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/5/19 8:41	7/5/19 9:02	21	YES	21	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/5/19 9:54	7/5/19 10:21	27	YES	27	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

		,	· · · ·	~\		E~\	5h)	5i)	5j)
5a)	5b)	5c)	5d)	5e)	5f)	5g)		51)	Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date	End date and	Duration of	Was P.C.E.	Duration of	Reason for monitor	
ID	Required to be	Limit Required	and Time of	time of bypass	monitor	operating	allowable	bypass (clarifying	action taken
number	Monitored	to be Monitored	Bypass Period	period	bypass	during bypass	monitor	comments)	(clarifying
mininei	MOUNTOLEG	to be Monitored	Буразэт слос	period	(minutes)	period?	bypass		comments)
Line 6	SV144	NOx/SO2	7/15/19 9:35	7/15/19 14:26	291	YES	291	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/16/19 7:25	7/16/19 7:34	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/17/19 4:18	7/17/19 6:01	103	YES	103	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/17/19 12:01	7/17/19 14:30	149	YES	149	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/17/19 14:30	7/17/19 15:54	84	YES	84	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/17/19 16:09	7/17/19 17:31	82	YES	82	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/18/19 7:58	7/18/19 10:01	123	YES	123	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/18/19 10:05	7/18/19 10:07	1	YES	1	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	7/19/19 0:40	7/19/19 2:23	103	YES	103	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/13/19 22:57	8/13/19 23:59	62	YES	62	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/14/19 17:59	8/15/19 6:30	741	YES	741	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/15/19 6:30	8/15/19 7:00	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/15/19 7:00	8/15/19 14:30	451	YES	451	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/15/19 14:30	8/15/19 16:25	115	YES	115	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/22/19 10:33	8/22/19 10:53	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/23/19 9:59	8/23/19 10:43	44	YES	44	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/23/19 11:56	8/23/19 12:13	17	YES	17	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/26/19 13:06	8/26/19 13:13	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	8/26/19 13:18	8/26/19 13:24	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/\$02	8/28/19 0:42	8/28/19 6:30	348	YES	348	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

50\	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
5a)	······································			*	Duration of	Was P.C.E.	Duration of		Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date	End date and	monitor	operating	allowable	Reason for monitor	action taken
ID	Required to be	Limit Required	and Time of	time of bypass	bypass	during bypass	monitor	bypass (clarifying	(clarifying
number	Monitored	to be Monitored	Bypass Period	period	(minutes)	period?	bypass	comments)	comments)
					,	<u>'</u>		Bypass necessary	
Line 6	SV144	NOx/SO2	8/28/19 6:30	8/28/19 7:00	29	YES	29	to protect plant	N/A
Line	0.111		0,20,10 0,00	3 , 4, , , , , , , , , , , , , , , , , ,				equipment.	
								Bypass necessary	
Line 6	SV144	NOx/SO2	8/28/19 7:00	8/28/19 11:08	248	YES	248	to protect plant	N/A
FILLS O	0 7 1 7 7	NOXOUZ	0/20/10 1.00	0,20,10 ,,,00				equipment.	
								Bypass necessary	
line 6	SV144	NOx/SO2	8/30/19 7:54	8/30/19 9:02	68	YES	68	to protect plant	N/A
Line 6	37144	NOX/302	0/30/10 7.34	0/30/13 3.02		1,0	00	equipment.	
								Bypass necessary	
130	0)///44	Novicos	0/20/40 0/54	0/20/40 40:22	41	YES	41	to protect plant	N/A
Line 6	SV144	NOx/SO2	8/30/19 9:51	8/30/19 10:32	41	1 = 3	41	equipment.	1071
				0100140400		V=0	١ ،	Bypass necessary	N/A
Line 6	SV144	NOx/SO2	8/30/19 10:32	8/30/19 10:35	2	YES	2	to protect plant	IN/A
								equipment.	
								Bypass necessary	
Line 6	SV144	NOx/SO2	9/10/19 3:30	9/10/19 3:59	29	YES	29	to protect plant	N/A
				<u>.</u>				equipment.	
							1	Bypass necessary	
Line 6	SV144	NOx/SO2	9/11/19 12:59	9/11/19 17:59	300	YES	300	to protect plant	N/A
								equipment.	
								Bypass necessary	
Line 6	SV144	NOx/SO2	9/11/19 18:59	9/12/19 6:30	691	YES	691	to protect plant	N/A
								equipment.	
								Bypass necessary	
Line 6	SV144	NOx/SO2	9/12/19 6:30	9/12/19 7:00	30	YES	30	to protect plant	N/A
			1					equipment.	
			· · · · · · · · · · · · · · · · · · ·					Bypass necessary	
Line 6	SV144	NOx/SO2	9/12/19 7:00	9/12/19 12:31	331	YES	331	to protect plant	· N/A
	1				ļ			equipment.	
								Bypass necessary	
Line 6	SV144	NOx/SO2	9/12/19 12:46	9/12/19 12:50	4	YES	4	to protect plant	N/A
								equipment.	
								Bypass necessary	
Line 6	SV144	NOx/SO2	9/14/19 4:43	9/14/19 5:40	57	YES	57	to protect plant	N/A
Line	0014	1100000						equipment.	
								Bypass necessary	·
Line 6	SV144	NOx/SO2	9/14/19 17:01	9/14/19 17:12	11	YES	11	to protect plant	N/A
Line	0 1 1 7 7	NOXOGZ	0,1,1,10,1,10,1	0,1 11 10 11 11	l ''			equipment.	
ļ								Bypass necessary	
Line	SV144	NOx/SO2	9/15/19 14:09	9/15/19 14:30	21	YES	21	to protect plant	N/A
Line 6	37144	1102/302	9/10/19 14:09	3713713 14.00	[-'	120		equipment.	
				· · · · · · · · · · · · · · · · · · ·			 	Bypass necessary	
	0) (4.4.4	No. (oog	0/40/40 40-50	0/40/40 40:00	7	YES	7	to protect plant	N/A
Line 6	SV144	NOx/SO2	9/19/19 18:52	9/19/19 19:00	1 ′	1 E3	'	equipment.	1021
					 				
1	6	110 1000	0/40/40 40 00	04040 40:05	200	YES	26	Bypass necessary to protect plant	N/A
Line 6	SV144	NOx/SO2	9/19/19 19:00	9/19/19 19:25	26	150	20	equipment.	130/3
			ļ				 		
					1	\/	140	Bypass necessary	NUA
Line 6	SV144	NOx/SO2	9/20/19 12:10	9/20/19 14:30	140	YES	140	to protect plant	N/A
	ļ				ļ			equipment.	
			1			.,_+		Bypass necessary	\$175
Line 6	SV144	NOx/SO2	9/20/19 14:30	9/20/19 16:27	117	YES	117	to protect plant	N/A
		ļ			ļ .			equipment.	<u> </u>
								Bypass necessary	
Line 6	SV144	NOx/SO2	9/24/19 5:43	9/24/19 6:02	19	YES	19	to protect plant	N/A
								equipment.	
			1					Bypass necessary	
Line 6	SV144	NOx/SO2	9/24/19 11:20	9/24/19 11:59	39	YES	39	to protect plant	N/A
					l		<u> </u>	equipment.	
L		L		I				1 p	

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
	· · · · · · · · · · · · · · · · · · ·	, , , , ,		···	Duration of	Was P.C.E.	Duration of	· · · · · · · · · · · · · · · · · · ·	Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date	End date and	monitor	operating	allowable	Reason for monitor	action taken
ID	Required to be	Limit Required	and Time of	time of bypass	bypass	during bypass	monitor	bypass (clarifying	(clarifying
number	Monitored	to be Monitored	Bypass Period	period	(minutes)	period?	bypass	comments)	comments)
Line 7	SV151	NOx/SO2	7/2/19 7:19	7/2/19 11:03	223	YES	223	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/6/19 22:39	7/6/19 23:40	61	YES	61	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/9/19 10:08	7/9/19 10:09	1	YES	1	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/9/19 10:24	7/9/19 11:03	40	YES	40	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/9/19 12:16	7/9/19 12:24	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/10/19 6:52	7/10/19 6:59	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/10/19 9:59	7/10/19 13:59	240	YES	240	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/10/19 14:59	7/10/19 17:54	175	YES	175	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/14/19 21:46	7/14/19 22:30	44	YES	44	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/14/19 22:30	7/15/19 2:06	216	YES	216	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/15/19 15:04	7/15/19 15:28	25	YES	25	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/17/19 14:44	7/17/19 14:50	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/19/19 3:21	7/19/19 3:49	28	YES	28	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/21/19 3:56	7/21/19 4:01	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	7/26/19 22:41	7/26/19 22:45	4	YES	4	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/5/19 8:26	8/5/19 8:28	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/5/19 8:29	8/5/19 8:32	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/10/19 15:22	8/10/19 15:29	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/13/19 21:57	8/13/19 22:59	62	YES	62	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/14/19 9:59	8/14/19 14:30	271	YES	271	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e}	5f)	5g)	5h)	5i)	5j)
			,		Duration of	Was P.C.E.	Duration of	D	Corrective
Monitor	Emission Unit	Pollutant and	Beginning Date	End date and	monitor	operating	aliowabie	Reason for monitor	action taken
ID	Required to be	Limit Required	and Time of	time of bypass	bypass	during bypass	monitor	bypass (clarifying	(clarifying
number	Monitored	to be Monitored	Bypass Period	period	(minutes)	period?	bypass	comments)	comments)
Line 7	SV151	NOx/SO2	8/14/19 14:30	8/14/19 19:00	270	YES	270	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/14/19 19:00	8/14/19 22:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/15/19 0:45	8/15/19 0:47	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/15/19 12:20	8/15/19 12:30	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/17/19 12:27	8/17/19 12:30	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/19/19 20:46	8/19/19 22:30	104	YES	104	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/19/19 22:30	8/20/19 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/20/19 6:30	8/20/19 7:00	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/20/19 7:00	8/20/19 14:30	450	YES	450	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/20/19 14:30	8/20/19 16:47	137	YES	137	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/21/19 5:11	8/21/19 5:22	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/21/19 10:44	8/21/19 10:52	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/22/19 19:20	8/22/19 19:28	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	8/23/19 2:41	8/23/19 2:44	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/1/19 7:26	9/1/19 8:33	67	YES	67	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/10/19 4:31	9/10/19 4:59	28	YES	28	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/11/19 8:59	9/11/19 14:30	631	YES	631	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/11/19 14:30	9/11/19 19:00	270	YES	270	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/11/19 19:00	9/11/19 22:30	210	YES	210	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/11/19 22:30	9/12/19 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system See Minn. R. 7017.1110 subp. 2c

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 7	SV151	NOx/SO2	9/12/19 6:30	9/12/19 7:00	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/12/19 7:00	9/12/19 11:17	258	YES	258	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/13/19 10:55	9/13/19 11:07	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/15/19 16:58	9/15/19 17:25	27	YES	27	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/20/19 13:03	9/20/19 14:30	87	YES	87	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/20/19 14:30	9/20/19 16:57	148	YES	148	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/23/19 16:41	9/23/19 16:52	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/23/19 19:49	9/23/19 20:04	15	YES	15	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/23/19 16:41	9/23/19 16:52	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	9/23/19 19:49	9/23/19 20:04	15	YES	15	Bypass necessary to protect plant equipment.	N/A
									
			5k) Total	duration of allov	 wable monito	or bypass:	450	hours	<u> </u>

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Subject	7.5	1			, , , , , , , , , , , , , , , , , , ,		Nové toot	
tem	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
3.77			1					
N/A		1				L		4.000
			<u></u>					
	gas audit's	(CGA)				W-1-41-0		W-24-0
Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
21112					Low 0.98%			***
SV103	2120	MR001	NOx	8/21/2019	Mid 0.01% Low 2.41%	Pass	12/31/2019	
SV118	2084	MR002	NOx	8/21/2019	Mid 1.70%	Pass	12/31/2019	
01/407	2404	MR003	NOx	8/21/2019	Low 4.09% Mid 2.06%	Pass	12/31/2019	
SV127	2104	MIKUUS	INOX	0/2 1/2013	Low 0.26%		1210112010	
SV144	2156	MR004	NOx	8/22/2019	Mid 1.49% Low 4.43%	Pass	12/31/2019	
SV151	2165	MR005	NOx	8/22/2019	Mid 3.10%	Pass	12/31/2019	
				0/04/0040	Low 1.46% Mid 1.33%	Davis	40/04/0040	
SV103	2120	MR001	SO2	8/21/2019	Low 1.46%	Pass	12/31/2019	
SV118	2084	MR002	SO2	8/21/2019	Mid 1.87%	Pass	12/31/2019	
SV127	2104	MR003	SO2	8/21/2019	Low 3.44% Mid 1.69%	Pass	12/31/2019	
			con	0/08/2040	Low 1,32% Mid 0.49%	Dont	12/31/2019	
SV144	2156	MR004	S02	8/22/2019	Low 4.76%		12/3/12/19	
SV151	2165	MR005	SO2	8/22/2019	Mid 0.18%	Pass	12/31/2019	
Linearity	1				- 7. unn	·		- Automotive
Emission	Operating			Last audit			Next test	
unit	hours	Monitor ID	Pollutant	date	Cal error results Low		due by:	Comments
			į			4	1	
					Mid		1	
N/A		nat andit (DATA)		Mid High			
Relative		est audit (RATA)	l act audit	High		Next test	
Relative Emission	accuracy t	est audit (RATA) Pollutant	Last audit date			Next test due by:	Comments
	Operating				High Relative			Comments
Relative Emission	Operating				High Relative			Comments
Relative Emission unit	Operating	Monitor ID	Pollutant	date	Relative accuracy	Pass/fail	due by:	Comments
Relative Emission unit SV103	Operating	Monitor ID	Pollutant	date	Relative accuracy	Pass/fail	due by:	Comments
Relative Emission unit	Operating	Monitor ID	Pollutant SO2	5/15/2019	Relative accuracy	Pass/fail	due by: 2nd Qtr 2020	Comments
Relative Emission unit SV103	Operating	Monitor ID MR001 MR001	Pollutant SO2 NOx	5/15/2019 5/15/2019	Relative accuracy 4.6%	Pass/fail	due by: 2nd Qtr 2020	Comments
Relative Emission unit SV103	Operating	Monitor ID	Pollutant SO2	5/15/2019	Relative accuracy	Pass/fail Pass	2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103	Operating	Monitor ID MR001 MR001 MR002	Pollutant SO2 NOx SO2	5/15/2019 5/15/2019 5/16/2019	Relative accuracy 4.6% 6.3%	Pass/fail Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103	Operating	Monitor ID MR001 MR001	Pollutant SO2 NOx	5/15/2019 5/15/2019	Relative accuracy 4.6%	Pass/fail Pass	2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118	Operating	Monitor ID MR001 MR001 MR002 MR002	Pollutant SO2 NOx SO2	5/15/2019 5/16/2019 5/16/2019	Relative accuracy 4.6% 6.3%	Pass/fail Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118	Operating	Monitor ID MR001 MR001 MR002	Pollutant SO2 NOx SO2	5/15/2019 5/15/2019 5/16/2019	Relative accuracy 4.6% 6.3%	Pass/fail Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV118	Operating	MR001 MR001 MR002 MR002 MR003	Pollutant SO2 NOx SO2 NOx	5/15/2019 5/16/2019 5/16/2019 5/20/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3%	Pass/fail Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118	Operating	Monitor ID MR001 MR001 MR002 MR002	Pollutant SO2 NOx SO2 NOx	5/15/2019 5/16/2019 5/16/2019	Relative accuracy 4.6% 6.3%	Pass/fail Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV117 SV127	Operating	MR001 MR001 MR002 MR002 MR002 MR003	Pollutant SO2 NOx SO2 NOx NOx	5/15/2019 5/16/2019 5/16/2019 5/20/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3% 4.9%	Pass/fail Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV117 SV127	Operating	MR001 MR001 MR002 MR002 MR003	Pollutant SO2 NOx SO2 NOx	5/15/2019 5/16/2019 5/16/2019 5/20/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3%	Pass/fail Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV117 SV127 SV127	Operating	MR001 MR001 MR002 MR002 MR003 MR003	Pollutant SO2 NOX SO2 NOX SO2 NOX SO2	5/15/2019 5/16/2019 5/16/2019 5/20/2019 5/22/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3% 4.9% 4.9%	Pass/fail Pass Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV117 SV127 SV127	Operating	MR001 MR001 MR002 MR002 MR002 MR003	Pollutant SO2 NOx SO2 NOx NOx	5/15/2019 5/16/2019 5/16/2019 5/20/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3% 4.9%	Pass/fail Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV117 SV127 SV127	Operating	MR001 MR001 MR002 MR002 MR003 MR003 MR004	Pollutant SO2 NOX SO2 NOX SO2 NOX	5/15/2019 5/16/2019 5/16/2019 5/20/2019 5/22/2019	High Relative accuracy 4.6% 6.3% 6.3% 4.9% 4.0%	Pass/fail Pass Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV1127 SV127 SV127 SV144	Operating	MR001 MR001 MR002 MR002 MR003 MR003	Pollutant SO2 NOX SO2 NOX SO2 NOX SO2	5/15/2019 5/16/2019 5/16/2019 5/20/2019 5/22/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3% 4.9% 4.9%	Pass/fail Pass Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV1127 SV127 SV127 SV144	Operating	MR001 MR001 MR002 MR002 MR003 MR003 MR004	Pollutant SO2 NOX SO2 NOX SO2 NOX	5/15/2019 5/16/2019 5/16/2019 5/20/2019 5/22/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3% 4.9% 4.9% 16.7% 4.0%	Pass/fail Pass Pass Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV118	Operating	MR001 MR001 MR002 MR002 MR003 MR003 MR004	Pollutant SO2 NOX SO2 NOX SO2 NOX	5/15/2019 5/16/2019 5/16/2019 5/20/2019 5/22/2019	High Relative accuracy 4.6% 6.3% 6.3% 4.9% 4.0%	Pass/fail Pass Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments
Relative Emission unit SV103 SV103 SV118 SV118 SV117 SV127 SV127 SV144 SV144 SV144	Operating	MR001 MR001 MR002 MR002 MR003 MR003 MR004 MR004	Pollutant SO2 NOX SO2 NOX SO2 NOX SO2	5/15/2019 5/16/2019 5/16/2019 5/20/2019 5/22/2019 5/22/2019	High Relative accuracy 4.6% 6.3% 16.2% 6.3% 4.9% 4.9% 16.7% 4.0%	Pass/fail Pass Pass Pass Pass Pass Pass Pass	2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020 2nd Qtr 2020	Comments

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature of Responsible Official

Lawrence Sutherland
Printed Name of Responsible Official

General Manager - Minnesota Ore Operations

Title

Date

Facility Name: US Steel MinTac

Location:,

NOX LINE_3 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-1

Test Date: 8/21/2019

Tester: NICHOLAS WILSON

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	125.600	276,200
Cylinder No	CC154435	CC209033
Expiration Date	3/18/2020	11/3/2024

	Low		M	íd
	Time	Monitor Value	Time	Monitor Value
Run 1	10:00	126.300	10:05	275,100
Run 2	10:13	126.600	10:17	277.200
Run 3	10:25	127.600	10:29	276.400
Avg Monitor Response		126.833		276.233
Calibration Error		0.98		0.01
Absolute Diff		1.233		0,033
Test Status		PASSED		PASSED

Calibration Error = _	Avg. Monitor Response - Cal. Gas Concentration	X 100
Calibration Lift	Cal. Gas Concentration	•

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_3 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-1

Test Date: 8/21/2019

Tester: NICHOLAS

WILSON

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.200	55.300
Cylinder No	CC154435	CC209033
Expiration Date	3/18/2020	11/3/2024

•	Lo)W	Mid		
	Time		Time	Mønitor Value	
Run 1	10:00	24.700	10:05	54.600	
Run 2	10:13	25.100	10:17	54.700	
Run 3	10:25	24.700	10:29	54,400	
Avg Monitor Response		24,833		54.567	
Calibration Error	A transcription of the second	1.46		1.33	
Absolute Diff		0.367		0.733	
Test Status		PASSED		PASSED	

Avg. Monitor Response - Cal. Gas Concentration	
Calibration Error = X 10	0
Cal. Gas Concentration	

Facility Name: US Steel MinTac

Location:,

NOX LINE_4 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-2

Test Date: 8/21/2019

Tester:

Analyzer Span: 500.000 PPMW

	Low	*Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	125.600	276,200
Cylinder No	CC154435	CC209033
Expiration Date	3/18/2020	11/3/2024

	L	ow - S	M	id
	Time	Monitor Value	Time	Monitor Value
Run 1	11:04	123.400	11:08	271.900
Run 2	11:17	122.600	11:21	270.900
Run 3	11:29	121.700	11:33	271.700
Avg Monitor Response		122.567		271.500
Calibration Error		2.41		1,70
Absolute Diff		3.033		4.700
Test Status		PASSED		PASSED

Calibration Error = _	Avg. Monitor Response - Cal. Gas Concentration	X 100
Calibration Error	Cal. Gas Concentration	

Facility Name: US Steel MinTac

Location:,

SO2 LINE_4 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-2

Test Date: 8/21/2019

Tester: NICHOLAS WILSON

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 ` PPMW)
Concentration	25.200	55.300
Cylinder No	CC154435	CC209033
Expiration Date	3/18/2020	11/3/2024

	Low		Mid	
	Time	Menitor Value	Time	Monitor Value
Run 1	11:04	26.400	11:08	56.900
Run 2	11:17	25.300	11:21	56.700
Run 3	11:29	25.000	11:33	55.400
Avg Monitor Response		25.567		56,333
Calibration Error		1.46		1.87
Absolute Diff		0.367		1.033
Test Status		PASSED		PASSED

Avg. Monitor Response - Cal. Gas Concentration

Calibration Error = _____X 100

Facility Name: US Steel MinTac

Location: ,

NOX LINE_5 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AX-920-9640-3

Test Date: 8/21/2019

Tester: NICHOLAS

WILSON

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	125.600	276,200
Cylinder No	CC154435	CC209033
Expiration Date	3/18/2020	11/3/2024

	Low		⇒Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	11:49	131.300	11:53	281.700
Run 2	12:02	130,200	12:06	281.600
Run 3	12:15	130.700	12:19	282.400
Avg Monitor Response		130.733		281.900
Calibration Error		4.09		2.06
Absolute Diff		5.133		5.700
Test Status		PASSED		PASSED

	Avg. Monitor Response - Cal. Gas Concentration	
Calibration Error = .		X 100
	Cal. Gas Concentration	

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_5 Audit Test Results

Mfr. & Model: AMETEK 920 S02 NOX

Serial Number: AX-920-9640-3

Test Date: 8/21/2019

Tester: NICHOLAS WILSON

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.200	55.300
Cylinder No	CC154435	CC209033
Expiration Date	3/18/2020	11/3/2024

	Low		Mid	
	Time	- Monitor Value	Time	Monitor Value
Run 1	11:49	25.900	11:53	55,800
Run 2	12:02	26.100	12:06	56.400
Run 3	12:15	26,200	12:19	56,500
Avg Monitor Response		26.067		56.233
Calibration Error		3.44		1.69
Absolute Diff		0,867		0.933
Test Status		PASSED		PASSED

Calibration Error = _	Avg. Monitor Response - Cal. Gas Concentration	X 100
Campiation Entri	Cal. Gas Concentration	

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

Report generated on: 09/03/2019 08:48:33

Facility Name: US Steel MinTac

Location: ,

NOX LINE_6 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-1

Test Date: 8/22/2019

Tester: NICHOLAS WILSON

Analyzer Span: 500.000 PPMW

	Lów	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	126.400	277.400
Cylinder No	CC314177	CC206391
Expiration Date	3/18/2020	11/13/2021

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	07:39	126.600	07:43	281,800
Run 2	07:52	126.900	07:56	281.500
Run 3	08:06	126.700	08:10	281,300
Avg Monitor Response		126.733		281.533
Calibration Error		0.26		1.49
Absolute Diff		0.333		4.133
Test Status		PASSED		PASSED

Avg. Monitor R Calibration Error =	esponse - Cal. Gas Concentration
Cal	Gas Concentration

Facility Name: US Steel MinTac

Location:,

SO2 LINE_6 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-1

Test Date: 8/22/2019

Tester: NICHOLAS WILSON

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.200	54.100
Cylinder No	CC314177	CC206391
Expiration Date	3/18/2020	11/13/2021

	Low		Mid 🗼	
	Time	Monitor Value	Time	Monitor Value
Run 1	07:39	24.900	07:43	53.900
Run 2	07:52	24.900	07:56	54.700
Run 3	08:06	24.800	08:10	54.500
Avg Monitor Response		24.867		54.367
Calibration Error		1.32		0.49
Absolute Diff		0.333		0.267
Test Status		PASSED		PASSED

Calibration Error =	Avg. Monitor Response - Cal. Gas Concentration	X 100
	Cal. Gas Concentration	

Facility Name: US Steel MinTac

Location: ,

NOX LINE_7 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-2

Test Date: 8/22/2019

Tester: NICHOLAS WILSON

Analyzer Span: 500.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(100.000 PPMW - 150.000 PPMW)	(250.000 PPMW - 300.000 PPMW)
Concentration	126.400	277.400
Cylinder No	CC314177	CC206391
Expiration Date	3/18/2020	11/13/2021

	Low		. Mid	
	Time	Monitor- Value	Time	Monitor Välue
Run 1	08:49	133.000	08:53	286.000
Run 2	09:02	131.000	09:06	285.000
Run 3	09:15	132.000	09:19	287.000
Avg Monitor Response		132.000		286.000
Calibration Error		4.43		3.10
Absolute Diff		5.600		8.600
Test Status		PASSED		PASSED

Calibration Error = _	Avg. Monitor Response - Cal. Gas Concentration	X.100
	Cal. Gas Concentration	

Facility Name: US Steel MinTac

Location: ,

SO2 LINE_7 Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: ZA-920-10336-2

Test Date: 8/22/2019

Tester: NICHOLAS

WILSON

Analyzer Span: 100.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(20.000 PPMW - 30.000 PPMW)	(50.000 PPMW - 60.000 PPMW)
Concentration	25.200	54,100
Cylinder No	CC314177	CC206391
Expiration Date	3/18/2020	11/13/2021

	Low		Mid	
	. Time	Monitor Value	Time ,	Monitor Value
Run 1	08:49	24.000	08:53	54.000
Run 2	09:02	24.000	09:06	54,000
Run 3	09:15	24.000	09:19	54.000
Avg Monitor Response		24.000		54.000
Calibration Error		4.76		0.18
Absolute Diff		1.200		0,100
Test Status		PASSED		PASSED

Calibration Error =	Avg. Monitor Response - Cal. Gas Concentration	X 100
Campiation Life	Cal. Gas Concentration	

Summary Table by Monitor Downtime Type U. S. Steel - Minntac 3rd Quarter 2019

NOx

Line	Duration (Hrs)	Description
Line 3	4	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	3	Excess Drift Primary Analyzer
	3	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
Line 4	6	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	3	Primary Analyzer Malfunction
Line 5	3	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	5	Sample Interface Malfunction
	3	Primary Analyzer Malfunction
Line 6	5	Automatic Calibration
	0	Data Handling System Malfunction
	8	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	32	Primary Analyzer Malfunction
Line 7	. 8	Automatic Calibration
	0	Data Handling System Malfunction
	8	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	1	Primary Analyzer Malfunction
	0	Preventative Maintenance

SO2

Line	Duration (Hrs)	Description
Line 3	6	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	3	Excess Drift Primary Analyzer
	10	Sample Interface Malfunction
	3	Primary Analyzer Malfunction
Line 4	6	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	3	Primary Analyzer Malfunction
	0	Preventative Maintenance
Line 5	3	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	5	Sample Interface Malfunction
	3	Primary Analyzer Malfunction
	0	Preventative Maintenance
Line 6	6	Automatic Calibration
	0	Sample Interface Malfunction
	8	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	32	Primary Analyzer Malfunction
Line 7	16	Automatic Calibration
	0	Data Handling System Malfunction